CLAIMS

1. An isolated polynucleotide comprising a sequence selected from the group consisting of:

(a) sequences provided in SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210;

(b) complements of the sequences provided in SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210;

(c) sequences that hybridize to a sequence provided in SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210, under moderately stringent conditions;

(d) sequences having at least 75% identity to a sequence of SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210;

(e) sequences having at least 90% identity to a sequence of SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210; and

(f) degenerate variants of a sequence provided in SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210.

2. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

(a) sequences encoded by a polynucleotide of claim 1; and

(b) sequences having at least 70% identity to a sequence encoded by a polynucleotide of claim 1;

(c) sequences having at least 90% identity to a sequence encoded by a polynucleotide of claim 1; and

(d) sequences selected from the group consisting of SEQ ID NO: 181-203, 207-209 and 211-224.

3. An isolated antigenic epitope of a *B. microti* antigen comprising

the amino acid sequence -X_1-X_2-X_3-X_4-X_5-Ser-, wherein X_1 is Glu or Gly, X_2 is Ala or Thr, X_3 is Gly or Val, X_4 is Trp or Gly and X_5 is Pro or Ser.

4. An isolated antigenic epitope according to claim 3 wherein X_1 is Glu, X_2 is Ala and X_3 is Gly.

5. An isolated antigenic epitope according to claim 3 wherein X_1 is Gly, X_2 is Thr and X_5 is Pro.

6. An isolated polypeptide comprising at least two contiguous antigenic epitopes according to claim 3.

7. An isolated antigenic epitope of a *B. microti* antigen comprising an amino acid sequence selected from the group consisting of SEQ ID NOs:36 and 39.

8. An isolated polypeptide comprising at least two contiguous antigenic epitopes according to any one of claims 3 and 7.

9. An expression vector comprising a polynucleotide of claim 1 operably linked to an expression control sequence.

10. A host cell transformed or transfected with an expression vector according to claim 9.

11. An isolated antibody, or antigen-binding fragment thereof, that specifically binds to a polypeptide of claim 2.

12. A fusion protein comprising at least one polypeptide according to claim 2.

13. A fusion protein comprising a polypeptide having an amino acid sequence of SEQ ID NO:32.

14. The fusion protein of claim 13 further comprising a polypeptide having an amino acid sequence of SEQ ID NO:52.

15. A fusion protein comprising at least two antigenic epitopes according to any one of claims 3 and 7.

16. A fusion protein comprising at least one polypeptide according to any one of claims 2, 6 and 8, and at least one antigenic epitope according to any one of claims 3 and 7.

17. An oligonucleotide that hybridizes to a sequence recited in SEQ ID NO: 1-17, 37, 40, 42, 45, 50, 51, 91-119, 128-131, 135, 204 and 210 under moderately stringent conditions.

18. A composition comprising a first component selected from the group consisting of physiologically acceptable carriers and immunostimulants, and a second component selected from the group consisting of:

(a) polypeptides according to any one of claims 2, 6 and 8;

(b) polynucleotides according to claim 1;

(c) antibodies according to claim 11; and

(d) fusion proteins according to any one of claims 13, 16 and 36.

19. A method for stimulating an immune response in a patient, comprising administering to the patient a composition of claim 18.

20. A method for the treatment of *B. microti* infection in a patient, comprising administering to the patient a composition of claim 18.

21. A method for determining *B. microti* infection in a patient, comprising the steps of:

(a) obtaining a biological sample from the patient;

(b) contacting the biological sample with an oligonucleotide according to claim 18;

(c) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(d) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining *B. microti* infection in the patient.

22. A diagnostic kit comprising at least one oligonucleotide according to claim 18.

23. A diagnostic kit comprising at least one antibody according to claim 5 and a detection reagent, wherein the detection reagent comprises a reporter group.

24. A method for detecting *B. microti* infection in a patient, comprising the steps of:

(a) obtaining a biological sample from the patient;

(b) contacting the biological sample with a binding agent that binds to a polypeptide of claim 2;

(c) detecting in the sample an amount of polypeptide that binds to the binding agent; and

(e) comparing the amount of polypeptide to a predetermined cut-off value and therefrom determining *B. microti* infection in the patient.

25. A method for detecting *B. microti* infection in a patient,

comprising:

(a) obtaining a sample from the patient;

(b) contacting the sample with at least one antigenic epitope according to any one of claims 3 and 7; and

(c) detecting the presence of antibodies that bind to the antigenic epitope.

26. A method for detecting *B. microti* infection in a patient, comprising:

(a) obtaining a sample from the patient;

(b) contacting the sample with at least one polypeptide according to any one of claims 2, 6 and 8; and

(c) detecting the presence of antibodies that bind to the polypeptide.

27. A method for detecting *B. microti* infection in a patient, comprising:

(a) obtaining a sample from the patient;

(b) contacting the sample with at least one polypeptide according to any one of claims 2, 6 and 8, and at least one antigenic epitope according to any one of claims 3 and 7; and

(c) detecting the presence of antibodies that bind to the polypeptide or antigenic epitope.

28. A method for detecting *B. microti* infection in a patient, comprising:

(a) obtaining a sample from the patient;

(b) contacting the sample with a fusion protein according to any one of claims 13, 16 and 36; and

(c) detecting the presence of antibodies that bind to the fusion protein.

29. A method of detecting *B. microti* infection in a biological sample, comprising:

(a) contacting the biological sample with a first binding agent which is capable of binding to a polypeptide according to any one of claims 2, 6 and 8, and a second binding agent which is capable of binding to an antigenic epitope according to any one of claims 3 and 7; and

(b) detecting in the sample a polypeptide that binds to the first binding agent or an antigenic epitope that binds to the second binding agent, thereby detecting *B. microti* infection in the biological sample.

30. The method of claim 29 wherein the binding agent is a monoclonal antibody.

31. The method of claim 29 wherein the binding agent is a polyclonal antibody.

32. A diagnostic kit comprising

(a) at least one polypeptide according to any one of claims 2, 6 and 8; and

(b) a detection reagent.

33. A diagnostic kit comprising:

(a) at least one antigenic epitope according to any one of claims 3 and 7; and

(b) a detection reagent.

34. A diagnostic kit comprising:

(a) at least one antigenic epitope according to any one of claims 3 and 7;

(b) at least one polypeptide according to any one of claims 2, 6 and 8;

and

(c) a detection reagent.

35. A fusion protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO: 85, 87, 144 and 211.

36. A diagnostic kit comprising:

(a) at least one fusion protein according to any one of claims 13, 16 and 35; and

(b) a detection reagent.